IMPERIAL
DEPARTMENT OF AGRICULTURE
FOR THE WEST INDIES.

IMPERIAL BUREAU
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REPORT

ON THE

AGRICULTURAL DEPARTMENT, ST. VINCENT,

FOR THE YEAR

1929.

TRINIDAD.
ISSUED BY THE IMPERIAL COMMISSIONER OF AGRICULTURE
FOR THE WEST INDIES.

1930.

[Price Sixpence.]

REPORTS

ON THE

BOTANIC STATION, ECONOMIC PLOTS, AND AGRICULTURAL EDUCATION, ST. VINCENT.

Annual Reports on certain Economic Experiments conducted in connexion with the Botanic Station, 1900-2.

Annual Reports on the Botanic Station for the years 1901 and 1902.

Annual Reports on the Botanic Station, Economic Experiments, and Agricultural Education for the years 1902-3 to 1918-29.

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LETTER OF TRANSMITTAL.

No. C.A. 369.

TRINIDAD, 2nd July, 1930.

SIR,

I have the honour to transmit herewith the Report of the Superintendent of Agriculture, on the St. Vincent Agricultural Department for the year ended December, 31st. 1929.

2. The Report follows the usual line in recording the work of the Agricultural Department.

3. The Fruit and Vegetable Bureau has been working since July 1929, and the report which is included covers only a six months' period, and serves to indicate the lines on which its work was started. The development of the Fruit and Vegetable Trade in St. Vincent, as in other West Indian Islands, is likely to be of importance in the future.

4. The change in the cotton planting season has been followed by a reduction in the area planted to cotton, but an increased yield seems to be indicated as a result of this change. There was very little soft rot of bolls, and but little injury from insect pest.

5. The recorded rainfall was slightly below the average, but was well above the average in September and November. If cotton had been planted in June or July, there is every reason to believe that the losses from soft rot of the bolls would have been very heavy in 1929 as they have been for many years past.

I have the honour to be,

Sir,

Your most obedient servant,

H. A. BALLOU,
Commissioner of Agriculture
Imperial College of Tropical Agriculture.

His Honour
The Acting Administrator,
St. Vincent,
B.W.I.

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Staff of the Agricultural Department, St. Vincent.

Agricultural Superintendent and Inspector, Agricultural Credit Societies	T. P. Jackson.
Cotton Inspector and Government Vaccinating Officer ...	L. Brown.
Foreman, Experiment Station, and Agricultural Instructor	F. A. Simmons.
Foreman, Botanic Station and Inspector, Cotton Stainer Control	R. Vanloo.
Officer in Training to January 31st	B. Isaacs.
„ „ from 1st February ...	A. Duncan.
Clerical Assistant	Miss D. E. Wall.

REPORT ON THE AGRICULTURAL DEPARTMENT, ST. VINCENT.

For the year ended December 31st, 1929.

This Report, except the sections on the Fruit and Vegetable Bureau, and the working of the Government Cotton Ginnery, was written by the Agricultural Superintendent.

Work in the Botanic Gardens and Observations on Plants.

The rainfall measured at the Botanic Gardens for the year was 91·45 inches. As the average for the last 36 years works out at 96·94 inches, it may be regarded as normal.

Several efforts were made to improve the appearance of the Gardens ; these consisted in the heavy pruning of large trees. If the natural beauty of the gardens is to be maintained a number of old and unsightly trees will have to be removed.

The soil in the Botanic Gardens is naturally fertile but it is of such a nature that it quickly dries out in periods of sparse rainfall, and owing to this fact the death of several plants takes place annually during the dry season. During the last one *Ixora macrothyrsa* and *Ixora coccinea* were lost. The first mentioned is not common in St. Vincent, but in the northern part of the island the latter thrives and is quite common. Another species *I. odorata* does not seem to be adversely affected by the dry season. The largest specimen of the Sealing Wax Palm, (*Cyrtostachys Lakka*, Becc.) growing in the Gardens suffered considerably during the dry season; it is doubtful whether this will recover.

The old plant of *Spachea perforata*, which at one time was the only specimen, wild or cultivated known to botanists, and which was some nine months ago, regarded as dead, produced a strong shoot from its base during the year. It was probably planted by Mr. Anderson, Superintendent, some 130 or more years ago. In 1912, rooted cuttings were obtained from this tree and sent to various botanical establishments in the West Indies. One was planted in that part of the St. Vincent Gardens known as Nutmeg Ground. It is now a healthy tree some twenty feet in height.

Plants of *Passiflora edulis*, which produces fruit of a flavour superior to other Passifloras, made good growth during the year and is flowering at the time of writing. The Passiflora which is found growing wild in St. Vincent is known locally as Bellapple.

The plants of *Taraktogenos Wightiana* imported during 1926 and planted out in 1929 are making somewhat slow growth, but are in a perfectly healthy condition. It will be remembered that it is from these plants that Chaulmoogra oil which is used in cases of leprosy, is obtained.

In the Report on this Department for 1927, the question of the exporting of grafted mangoes to Canada was discussed. All grafted mango trees sent out, in the past by the Agricultural Department, had been inarched. This method is a safe one provided that the stocks get necessary attention as regards watering. Another point in its favour is that it is so simple that an intelligent boy or man can be taught how to perform the operation in a few minutes. The point against this method is that stocks have to be grown, and twelve months often elapses before they are ready to work on. At times stands have to be erected so as to bring the stocks and scions together, and the task of climbing these to water stocks is an arduous and expensive one. A method of converting common mango trees into valuable ones by Patch Budding has recently been successfully carried out in Jamaica, and there is no reason why it should not be done in this island. The stocks may be planted in situ and budding can be done when they are from one

to two inches or perhaps even less in diameter ; this remark applies to seedlings. The method, however, is one that would be particularly useful in converting old trees producing common mangoes into trees producing fruit of first class quality. This work has been started and there is no reason why, with normal care, it should not prove successful.

Plant Importations.

Three varieties of Upland Rice Kinastila, Binicol and Inantipola were imported from the Bureau of Agriculture, Manila. These are commented on in another part of this Report. Mr. O. Phillips of Grenada presented the Department with the following plants which it did not previously possess, Santa Clara and Chacona pineapples and strawberry (Fragaria) plants. The latter have done well and fruiting results were fairly satisfactory, numerous suckers are being formed, and some few have been distributed to persons requiring them. The fruits should be picked as soon as they start to colour and eaten about twenty-four hours afterwards. If left on the plants until fully ripe, rot quickly steps in. The fruits are of moderately good flavour and will be a decided acquisition to any garden. It will possibly be found that a little shade will be required for the plants.

A further lot of seeds of *Taraktogenos Wightiana* was imported through the Honourable the Chief Medical and Health Officer, from Southern India. These germinated well, and a small plot consisting of fifty-six was planted in a field near Fort Charlotte.

Ten pounds of Soya Beans with bacteria culture were obtained from The Soya Flour Company, London. This is discussed elsewhere.

A large number of packages of seeds was presented to the Department by the Harvard Botanical Garden, Cienfuegos, Cuba. Among these may be mentioned *Calamondin Orange*, *Citrus mitis*, Blanco, *Manchuria Jute*, *Abutilon avicinas*, Gaertn., *Magnolia grandiflora*, L., *Nelumbium luteum*, W. and *Solanum havanence*, Jacq.

One cutting of the well known cane, P.O.J., 2878, was obtained during the year from the Agricultural Department in Porto Rico. This variety is so well known that comments are not necessary but it might be said, however, that among other good qualities it is immune from Mosaic disease.

Work in Nurseries and Distribution of Plants.

The following is a list of plants, seeds, etc., distributed from the nurseries attached to the Botanic and Experiment Stations :—

Economic and Decorative Plants.		
Coco-nut	1,133	
Grafted mango	153	
Miscellaneous decorative	91	
,, economic	82	
	1,459	
Cuttings.		
Sweet potato	59,150	
Sugar Cane varieties	9,200	
Cassava	400	
	68,750	
Seeds.		
Arrowroot rhizomes	800 lb.	
Cotton Seed	412 ,,	
Yams	244 ,,	
Bengal beans	20 ,,	
Vegetable seeds		48 packages.
	1,476 lb.	

In the above it will be seen that 1,133 coco-nut plants were sent out. This does not indicate that decreased interest is being taken in coco-nut planting. Interest in this crop is being maintained and several hundred acres of new land were planted during 1929.

The number of grafted mango plants sent out constitutes a record.

The majority of the sweet potato cuttings distributed was of the variety V. 59. This is a heavy cropper and is deservedly becoming increasingly popular. It was raised by the Department a few years ago.

Attempts were made to raise seedling canes but they were not successful.

Inspection and Fumigation of Imported Plants and Seeds.

The following is a list of plants, etc., which were imported and fumigated under the Importation of Plant Diseases Protection Ordinance, 1906 :—

Vegetable Seeds...	...	...	42 parcels
Flower seeds ...	...	...	5 ,,
Roses and ornamental plants		...	13 ,,
Bulbs ...	...	...	3 ,,
Rice (Paddy) ..	...	...	1 ,,
Sweet potato cuttings	..	...	1 bag
Miscellaneous plants	...	...	4 parcels
Sour oranges	...	...	1 bag.

Three hundred and ninety seven certificates for fumigating second hand bags were issued. These were necessary on account of the requirements of the Trinidad Government in efforts made to prevent importation of Pink Bollworm into that Colony. The certificates were for bags in which agricultural produce was exported. The regulations in connection with these requirements were withdrawn early in 1930.

Manurial Experiments at the Experiment Station.

Sea Island Cotton.

The manures for these experiments were applied, but the germination of the seed was indifferent. The seed was obtained from flowers that had been self-pollinated and the supply was limited. In consequence the stand of plants was very irregular, and no record of the yields from the plots was taken.

Maize *(Indian Corn)*.

This is the ninth year in which manurial experiments have been conducted with this crop. The plots have received the same manurial treatment each year, and the area of each plot is 240 square feet. There are seven series, each in duplicate. The manure were applied on July 10th ; the seeds were sown on July 12th and the crop reaped on October 7th. The manurial treatment accorded each series was as follows :—

Series 1	...	No manure.
,, 2	...	Nitrogen, 30 lb. per acre as sulphate of ammonia.
,, 3	...	Potash, 30 lb. per acre as sulphate of potash.
,, 4	...	Nitrogen and potash as above.
,, 5	...	Cotton seed meal, 1,000 lb. per acre.
,, 6	...	Potash as above, cotton seed meal as above.
,, 7	...	Pen manure, 20 tons per acre.

In the following table the average percentage increase over the no manure plots is given. The figures are for eight years.

TABLE.

Series.	Percentage increase over no manure plot.	Series.	Percentage increase or decrease over no manure plot.
2	8	3	— 6
4	+27	5	+ 5
6	+10	7	+21

From the above it will be seen that potash had a depressing effect on the crop, but when this was supplemented with nitrogen, the combination resulted in an appreciable increase, *i.e.*, that of 27 per cent. The application of pen manure alone resulted in appreciable increases. When cotton seed meal was applied by itself at the rate of 1,000 lb. per acre, increases of only 5 per cent was obtained, but when potash was added increased returns of 10 per cent was reaped.

It is seldom that corn is planted as a pure crop, it is usually grown with cotton and other crops. When this is the case it is safe to recommend applications of pen manure.

Experiments with Ground Provisions.

YAM VARIETIES.

Nine varieties of yams were grown during the year with a view of testing yields. There were six plots of each variety grown, three of which were staked and three unstaked. The area of each plot was 160 square feet. They were planted on June 6th and reaped on December 9th. The results are given below.

TABLE.

Variety.	Calculated yield per acre unstaked. lb.	Mean.	Calculated yield per acre staked. lb.	Mean.	Increase of staked on unstaked.	Order of merit.
Seal Top ...	9,336		12,059			
	11,281		10,053			
	7,002	6,873	16,729	13,096	6,223	6
Bottle Neck Lisbon ...	14,782		22,173			
	17,116		24,118			
	7,002	12,967	10,892	19,061	6,094	1
Danish ...	6,613		10,892			
	8,169		14,393			
	9,725	8,169	16,338	13,874	5,705	3
Crop ...	6,613		10,892			
	17,505		15,650			
	5,057	9,725	12,448	12,999	3,274	2
Light Red ...	5,835		8,558			
	7,780		7,391			
	5,446	6,354	4,668	6,872	518	9
Bugle Horn ...	3,112		7,391			
	12,059		14,782			
	7,391	7,521	3,112	8,425	904	8
Horn ...	5,835		10,503			
	12,837		17,116			
	7,391	8,688	7,780	11,800	3,112	5
Oriental ...	7,780		13,226			
	8,947		8,558			
	6,613	7,780	16,338	12,707	4,925	4
Lisbon ...	7,780		10,503			
	6,234		8,947			
	9,336	7,780	8,947	9,465	785	7

The yield of yams from all the plots that were staked was in excess of those that were not so treated. In the cases of Crop, Seal Top, Bottle Neck Lisbon and Danish they were appreciable.

A crop of corn grown through yams would form a cheap method of providing stakes. In fact that is at times done by peasants and others.

As regards yield, Bottle Neck Lisbon easily came first with a mean calculated yield per acre of 16,014 lb. of yams. This was followed by Crop with a yield of 11,361 lb. The variety Light Red gave the poorest yield, *i.e.*, 6,113 lb per acre.

Sweet Potatoes.

The variety of sweet potato, New Jersey, was imported with the idea of growing it to meet a demand which exists in Canada at certain times of the year. It has the reputation of being popular in that market, and was tested against V. 52, a variety which has a good local reputation for all round qualities. New Jersey yielded at the rate of 2,823 lb. of tubes per acre, and V. 52. at the rate of 6,322 lb. The cuttings for this trial were planted on May 4th and the St. Vincent variety matured and was reaped on August 31st. The New Jersey variety was not ready for reaping until October 15th, forty-five days later. From this it is apparent that V. 52 should be grown for local and Intercolonial use. Trials with New Jersey should be made for shipment to the Canadian market.

It may be said that the imported variety was affected by Red Spider (*Tetranychus*) a tiny insect which attacks the leaves and at times defoliates the plants.

Cassava Seedlings.

In 1923, experiments with new cassava varieties were conducted. These indicated that the standard variety was equal, if not superior, to any of the newly raised ones. Subsequently further attempts were made to raise new varieties and during the year, nine newly raised ones were tested against the local variety, Bois West. The plots were small being $\frac{1}{363}$ acre in area and were planted on June 6th and reaped on December 9th. The results are put forward in the following table as pounds of tubers per acre.

Variety.	Yield per acre.	Percentage increase or decrease over yield of Bois West.
Bois West	8,731	
V. 25	13,915	+59
V. 15	13,907	+59
V. 23	12,491	+43
V. 22	12,147	+42
V. 14	11,193	+27
V. 21	9,405	+ 9
V. 24	7,531	−14
V. 20	7,033	−19
V. 19	4,502	−49

Of the nine new cassava varieties tested against the standard one, four, V. 25, V. 15, V. 23 and V. 22, are promising, the first and second particularly so. It is, however, too early to say anything definite about these. The cassava industry is sufficiently valuable to St. Vincent to warrant further testing of these new varieties and raising new ones.

Upland Rice.

Three varieties of Upland Rice were imported from the Agricultural Department, Manila, during the year; these were Kinastila, Binicol and Inantipola.

It was thought that they would prove useful acquisitions to the food crops of the Colony. They were sown in $\frac{1}{20}$ acre plots on June 1st and reaped during November. The results in pounds of dry paddy are as follows :—

Variety.	Calculated Yield per acre lb.
Inantipola	2,247
Kinastila	1,988
Binical	1,469

Mole crickets destroyed some plants in the seedling stage and a few stems were attacked by the Moth Borer of Sugar-cane. The damage done by these two insects was not great.

Soya Beans.

Seeds of this plant were imported with a tube of the culture of the root tubercle organism, during the year. These were obtained from the Soya Flour Company, London. The seeds were sown in a plot 770 square yards in area on September 22nd and reaped towards the end of December. The inoculation of the seeds did not result in a good yield, the quantity reaped being at the rate of 213 lb. of peas per acre. Poor results are often obtained when this crop is tried on land for the first time. In Demerara, Soya Beans have done much better than in St. Vincent, and soil from a plot in which this crop has been growing for years has recently been obtained. When further trials are made the soil of the plots in which the plants are grown will be inoculated with this.

Ground-nuts.

Experiments were carried out with four varieties of ground-nuts. These were planted on July 18th and reaped on November 29th. The area of each plot was 240 square feet. The results are given in the following table calculated as yield per acre of dried nuts.

Variety.	Plot. 1	Plot 2.	Plot 3.	Plot 4.	Mean.
Local ...	1,452	1,716	1,056	1,584	1,452
Improved ...	1,298	1,407	1,289	1,623	1,407
African ...	854	1,485	1,602	1,495	1,362
Virginia ...	713	1,242	1,065	976	976

In the above the Local variety proved to be the one which gave the best returns, and this was closely followed by Improved. Virginia, as this and past records indicate, is a shy bearer.

Tomatoes.

At the present moment there is a considerable amount of interest being taken, not only in St. Vincent, but throughout the West Indies in the growing of tomatoes for the Canadian market. These are required from December to April. Growing of tomatoes for this trade, if normal care is taken in cultivation and in the selection of the correct variety, is lucrative and there is no reason why St. Vincent should not participate. In point of fact, as will be seen in the section of this Report on the Fruit and Vegetable Bureau, a start has already been made. Three varieties of tomatoes were imported for trial purposes during the year.

These were Bonny Best, John Baer and Stone. Of these, Bonny Best possesses qualities superior to the others, especially in shape and freedom from disease; this particularly applies to Blossom end rot.

One plot of tomatoes was planted by Mr. M. T. Horner, Manager, Government Fruit and Vegetable Bureau, on November 14th. The area was $\frac{1}{8}$ acre, and the yield was 869 lb. or at the rate of 6,952 lb. per acre. The varieties grown on this plot were John Baer and Bonny Best. They were not kept separate when harvesting. Two other plots were planted, one on December 31st and one on January 9th. These experienced dry weather in their young stages and the stand was seriously affected by Mole Crickets. One plot yielded at the rate of 2,744 lb. per acre and the other 2,723 lb. The variety grown was Bonny Best. The plots were approximately $\frac{1}{7}$ acre in area, and the attacks of Mole Crickets were controlled to some extent by applying, around the stems of the plants for a distance of about one foot, a mixture of Paris Green and flour in the proportion of 1–100.

Sugar Cane Varietal Experiments.

Varietal Sugar cane experimental plots were planted during the year, but up to the time of writing they have not been reaped.

Cotton Selection.

No figures are available for cotton selection work. At the time of writing the 1929-30 season is not over. This is due to the alteration of the time of cotton planting.

Work connected with Insect and Fungus Pests and their control.

The Cotton Worms (*Alabama argillacea*, Hubn.)

No cotton worms were noticed in St. Vincent itself for the year 1929, but it must not be overlooked that they did considerable damage to the 1928-29 crop; the attacks took place towards the end of the year 1928. There were, however, attacks of this pest late in the year under review, on cotton growing in Mustique, one of the islands of the Northern Grenadines. They did little damage to the crop, and were controlled by applications of Paris Green.

The Pink Bollworm (*Platyedra gossypiella*).

The pink bollworm did less damage to the cotton crop of 1929-30 than to any previous crop since it was first recorded in St. Vincent. This cannot be ascribed to any one cause but was probably due to a combination of factors. In the first instance the cotton season was altered. No cotton was planted before the first day of September, and old cotton plants were destroyed before the 27th of April, giving a longer Close Season that had been previously experienced. In addition, there was a little food for this pest in the shape of cotton bolls until the dry season was approaching. There seems little doubt that pink bollworm thrives better in dull damp weather than during periods of hot sunshine. On the other hand, the effect of treating cotton seed by means of Simon's Patent Heater may be cumulative.

During the 1928-29 crop, pink bollworm larvæ were collected from the corollas of cotton flowers 59 days after the crop had been planted, and there was a 4·8 per cent. infestation of bolls when the crop was 124 days old. The infestation was 100 per cent. 186 days after planting. During the 1929-30 season, the first pink bollworm was found after careful search 129 days after the crop was planted, and when it was 230 day old the infestation was 68 per cent., at which age the crop was destroyed.

The Cotton Stainer (*Dysdercus delauneyi.*)

The work carried out for the control of stainers during the year under review was on similar lines to that of previous years. The Close Season for cotton began on the 27th of April and ended on August 31st. This is discussed in another part of this Report. At no time during the year were stainers noticed in quantities ; some were seen in flight, but they were not in large numbers.

Twenty-four silk cotton trees were cut down during the year.

In the following table the number of stainers accounted for at the Experiment Station for seven years is given.

Table.

Months.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
January ...	37,878	20,086	1,449	2,850	—	29,298	120
February ...	63,800	2,800	7,723	—	105	7,217	7,668
March ...	51,880	930	6,231	791	1,072	909	7,460
April ...	3,002	1,225	2,400	5,136	334	42,648	—
May ...	817	52	716	100	3,660	—	273
June ...	908	—	—	—	3,060	101	163
July ...	550	—	—	—	—	2	20
August ...	87	—	1	—	—	705	1,597
September ...	3	—	1	—	—	973	1
October ...	8	—	—	—	—	758	—
November ...	—	—	—	—	—	538	—
December ...	377	57	550	—	150	—	1

From the above it will be seen that stainers in large numbers were at no time present at the Experiment Station during the year.

Red Ring of Coco-nuts (*Aphelenchus cocophilus.*)

This disease is not making any headway in St. Vincent, which is a point of great importance as it is capable of doing extensive damage in coco-nut plantations and the coco-nut industry is now of great value to the Colony and is becoming increasingly so. The coco-nut palms in this island are, on the whole, in a healthy condition. There are, as would be expected, some exceptions; the majority of these are to be found growing on thin and impoverished land.

Red Ring disease is so important that it might be well if a few words are said about it. It is caused by a nematode worm which when in the adult stage is $\frac{1}{25}$ of an inch in length. When the attack is severe these worms are found in all parts of the plant. As a rule the disease is developed during the bearing of the first few crops of nuts. This is the critical stage and may extend from the fourth to the seventh year, sometimes, however, occurring up to ten or more years. One external symptom is the shedding of green nuts in all stages of immaturity, but the shedding of small nuts often occurs from healthy trees. Another symptom which may take place concurrently with this is the progressive yellowing or browning of the leaves in order of age. Commonly the lowest living leaves are the first affected, but sometimes discolouration commences above them. At first the appearance is indistinguishable from the natural dying off of old leaves. Later the difference becomes apparent as the tree is then conspicuous from its colouring of brown, orange and yellow. Subsequently there is a tendency for the leaves to break across and hang down. If at this time a cross section is taken towards the base of the stem it shows a well marked zone 1–1½ inches wide in which the ground tissue is dull red or red mingled with mustard yellow. In the white soft central leaves the petiole (leaf stalk) from a distance of several inches to a foot from the base is usually normal in appearance and then often contains a central infestation marked by vivid red or yellow spots.

Infestation may also be detected in the roots, in the skin or cortex, but the tree may be fully infested in stem and leaves and show only the beginning of infestation in the roots.

There is only one method of control and that is complete destruction of infected trees, and these should be dealt with as soon as possible. It is necessary not merely to cut the tree across at the base but to dig round it, cut the roots and turn it out. The whole should then be destroyed by the charcoal pit method. Infected trees should be isolated by means of trenches and these should be sufficiently deep to cut through all roots passing across its situation. The earth from digging should be thrown inwards as a precaution against the scattering of possibly diseased material among the healthy trees.

Arrowroot Worm (*Calpodes ethlius*).

This worm is present every year in fields of arrowroot and the one under review was no exception. It, however, was not present in large numbers and was not responsible for material damage.

Other Pests.

Bronze Beetle (*Colaspis fastidiosa*). This pest attacks seedling cotton plants and in this way renders it difficult at times for cotton plants to obtain regular stands. The first broods of Bronze Beetles usually make their appearance about May or June. During the past it was in these months that much of the cotton crop was in its infancy, *i.e.*, in the condition most susceptible to the attacks of these insects. During 1929 no cotton was planted in the island until the month of September, therefore, it escaped any severe attacks. These insects dislike direct sunshine which suggests at once that a method of control is the clean weeding of cotton fields.

Sclerotium rolfsii. This fungus causes the death of cotton plants when young, and is commonly called "damping off". The planting season for 1929 was four months later than usual and judging from one season's experience it would seem that this will help to solve a number of problems previously encountered by local cotton planters. It may on the other hand, be the cause of bringing a further lot to light. Cotton planted in or about the month of September will experience heavy rainfall in its young stages, a time when it is very liable to be attacked by this fungus. Planters should keep this in mind, remembering that sunshine is a fungicide, and the best way for this to be of benefit to young plants is to keep the field free from weeds. It is seldom or never that young cotton plants in St. Vincent are attacked by this fungus when growing in fields free from weeds.

Black Scale (*Saissetia nigra.*) This pest is always found on stalks of cotton plants towards the end of the cotton season. At this time an examination of the insects shows that a large proportion of them are punctured indicating the presence of parasites in the field. Black Scale is more common on the Leeward part of the island than on the Windward; attacks have never got out of hand.

Bush Bugs (*Nezara viridula*) were found on peas and other plants during the months of July, August and September. They were not responsible for material damage. These insects may be controlled by collecting, but the best method to adopt is to keep fields as free as possible of any weeds belonging to the order Leguminosæ, the pea family.

White Scale (*Hemichionaspis minor*) was common on stalks of mature cotton and mature pigeon peas.

Sugar Cane.

Root disease (*Marasmius sacchari*) was present during the year. This disease does not do material damage to crops growing on fertile land.

Rind fungus (*Melanconium sacchari*) and pine apple disease (*Thielaviopsis paradoxa*) were present. It is difficult to say the damage done by these two diseases but it is not great.

The Weevil Borer (*Sphenophorus sericeus*) and the Moth Borer (*Diatrea saccharalis*) were present but not in greater numbers than in previous years.

Cacao.

Thrips (*Heliothrips rubrocinctus*) were seen and Phytopthora rot of pods was common.

Miscellaneous.

The corn ear worm (*Laphygma frugiperda*) was commonly found on corn. White Fly (*Aleyrodicus cocois*) and Scale insects (*Aspidiotus destructor*) were found on coco-nut palms. In some parts of the World this latter mentioned insect causes extensive damage to coco-nut palms, but this is not the case in St. Vincent.

PLANT AND ANIMAL LEGISLATION ENACTED DURING THE YEAR, 1929.

No important legislation dealing with agriculture was enacted during the year.

EXPERIMENT STATION, UNION ISLAND.

Two samples of Marie Galante cotton lint were sent to England through the Commissioner of Agriculture during the year for spinning tests. One sample "A" was ordinary Marie Galante cotton and the other "B" was the result of selection work discussed in past Reports on the Agricultural Department. The tests were carried out at the Experimental Department, Fine Spinners and Doublers Association Ltd., Bollington. The letter of the Manager of the Department, which was sent covering the Report on the spinning tests reads as follows:—"In reply to your letter of 7th June we give you our report on the Spinning Tests we have made on the two samples of Marie Galante cotton marked "A" and "B". The samples differed so much from each other that we spun with them a sample of long staple White American cotton, known to us as "AOCK" as a control test. Marie Galante cotton is usually spun to 40's count,* but sample "B" appeared to us to be good enough to spin in 60's count, and sample "A" and the control American were also spun in this count for comparison purposes."

"In all three twists used in the tests, the samples fall in the following descending order of merit.

Long Staple American Cotton
Marie Galante "B"
" " "A"

"You will see from the attached spinning tests results that Marie Galante "B" is very much better than Marie Galante "A" and has justified our opinion that it will spin in 60's count. If the new selection maintains its quality a considerable improvement will have been made in the Marie Galante type of cotton".

The results which were put forward in table form, are technical and too lengthy for publication here. Every effort will be made to replace the ordinary Marie Galante with seed from this strain. At the time of writing, seed cotton selections from Union Island are on hand for examination, but no opportunity has presented itself for doing this work.

* Note:—The fineness of a yarn is expressed as a number of counts or hanks of yarn, each 840 yards long, which together weigh one pound.

Onion, tomato, eggplant and broom corn seeds were distributed to allottees. The Foreman, Experiment Station, held classes in connection with the making of brooms from broom corn. There was sufficient material for demonstrations in broom-making but not enough to make brooms in quantities. This was accounted for by a spell of dry weather experienced during the growing of the crop which resulted in poor returns.

The following table gives the rainfall as measured at Union Island during 1929. The readings were taken by the District Officer, Southern Grenadines.

Month.	Rainfall.
January	·90
February	1·91
March	·79
April	·73
May	3·39
June	2·25
July	3·68
August	4·79
September	4·49
October	4·62
November	7·41
December	1·18
Total inches	36·14

PROGRESS IN CHIEF INDUSTRIES.

Cotton Industry.

Figures were not available as to the yields for the crop 1928-29 when the Report on the Agricultural Department for 1928 was being compiled. To perserve continuity they are reproduced in this publication. There were 3,386 acres under Sea Island cotton, and the return was 263,808 lb. of lint, working out at 78 lb. to the acre, a very poor return which can primarily be put down to severe attacks of soft rot, and secondly to attacks of cotton worms. This is discussed later.

Following the procedure of former years, the appended tables are given. They indicate the number of peasant and estate growers of cotton.

Table 1.

1929–30.

			Sea Island. Acres.	Marie Galante. Acres.
530	Peasants, St. Vincent	...	432	
250	,, Union Island	...		765
39	,, Canouan	...		84
819				
33	Estates, St. Vincent	...	1,301	
1	Estate, Grenadines	...	25	
2	Estates, ,,	...		260
36			1,758	1,109

TABLE 2.

1928-1929.

			Sea Island. Acres.	Marie Galante. Acres.
1,256	Peasants,	St. Vincent ...	1,373	
30	,,	Bequia ...	24	
2	,,	Battawia ...	2	
			1,399	
212	,,	Union Island ...		652
44	,,	Canouan ...		83
1,544				
45	Estates,	St. Vincent ...	1,965	
1	Estate,	Grenadines ...	22	
2	Estates,	,, ...		260
48			3,386	995

It will be seen that there was a very sharp reduction in the area of land planted under Sea Island cotton in 1929 when compared with that of the previous year.

During the year no cotton was allowed to be planted before the 1st September, the Close Season extending from April 27th to August 31st. Formerly the planting of cotton seed commenced in June. It will therefore be seen that a step of great importance was taken during the past season and one that may have a far reaching effect on the St. Vincent cotton industry.

The question of changing the cotton season has been discussed many times, but there were many factors to be considered. In 1916–17 when the return of lint was only 66 lb. to the acre, and the return for the two previous seasons had only amounted to 76 lb. and 78 lb. respectively, Mr. Sands wrote in the Report on the Agricultural Department for that year :—

"It is thus shown that the loss of crop suffered by St. Vincent planters has been chiefly due to shedding of buds and bolls, caused by heavy rainfall, and intensified by fungus and bacterial disease. The plants themselves are not responsible for the low yield. Their innate capacity for bearing a large crop cannot be doubted ; it is the conditions that have been at fault." He goes on to say :—

"If the recent legislation against the food plants of the cotton stainer has the effect of relegating that pest and the internal boll disease to a position of minor importance, there is no reason why the loss hitherto suffered inavoidably from heavy rainfall should not be largely diminished by sowing the seed at the end of August or even September."

Since then, the question of altering the date of planting has been discussed many times. References are made to this in the Reports on the Agricultural Department for 1925 and 1927.

In April 1929, the Commissioner of Agriculture addressed a meeting of cotton planters, and by means of rainfall records and other data convinced the majority present that the time had definitely arrived when an alteration of the planting season for cotton should be made. It was then agreed by a majority that the Close Season for 1929 should be from April 27th to August 31st.

An outstanding trait of most of the West Indian planters' character is conservativeness, a distinct dislike of change, and this was plainly shown during the 1929–30 cotton season, when as a result in the change the area planted was considerably reduced. There was a feeling that they were running greater risks than they had done in previous years.

On the whole the germination of the seed for the crop was not particularly good. There were two factors responsible for this. The previous season had

been a wet one, much of the seed cotton had of necessity to be picked damp, which resulted, as is often the case in a proportion becoming water soaked. There was also a four months Close Season instead of two and this did not improve the germination qualities of the seed.

The rainfall for the month of September was above the average, 14·39 inches being recorded. This resulted in a vigourous growth of weeds and these, cotton planters did not control with their usual energy. High winds were experienced during the end of 1929 and early in 1930, and this had a stunting effect on growth. This difficulty has to be got over in the future to some extent by the planting of some quick growing crop as wind-breaks. One of the tall Sorghums, as Guinea corn, would suit this purpose.

The above combination of factors resulted in the obtaining of an indifferent stand of plants, and this should be kept in mind when considering results.

At the time of writing the yield of the Sea Island cotton crop is not known, but it will be between 216,000 lb. and 234,000 lb. which will be equal to a yield of 120 to 130 lb. of lint to the acre. On land which received good cultivation and manuring, a return of as much as 300 and more pounds of lint per acre were reaped.

The season was marked by its absence of insect and fungus pests. Cotton worms did no damage. There was some internal boll disease late in the season on cotton growing on estates situated in the northern part of the island. Soft Rot of bolls, which in past seasons had accounted for 50 or more per cent. of mature bolls was almost non-existant. In consequence of this, and the absence of heavy rains during reaping, the lint was much cleaner and had a better appearance after ginning than it possessed during previous seasons.

The outstanding features of the 1929–30 cotton crop may be summed up as follows :—

1. Difficulty of getting good stands of cotton seedlings.
2. The unusual quantity of weeds in fields of young cotton plants.
3. Absence of pests in fields until quite late in the season.

The last remark specially applies to Soft Rot (*Phytopthora*) and pink boll-worm.

It is difficult, and somewhat dangerous to come to conclusions as the result of one year's trial, but cotton planters in St. Vincent are almost unanimously of the opinion that the change of the planting season was a move in the right direction Good results were obtained but better ones would have accrued had planters given the 1929–30 crop the cultural attention that they generally do.

In the following table the areas under Sea Island cotton for the past decade are given :—

Table 3.

Crops.	Area planted. Acres.	Weight of lint, lb.	Weight of lint per acre, lb.
1920–21	6,453	614,508	95
1921–22	2,907	278,744	93
1922–23	3,562	575,640	162
1923–24	3,387	473,248	140
1924–25	3,294	449,295	136
1925–26	4,893	585,483	120
1926–27	6,156	507,240	82
1927–28	3,364	328,188	97
1928–29	3,386	263,808	78
1929–30	1,758	*234,000	130*

* Estimated.

Following the procedure adopted in previous years the annexed table has been compiled. It shows the amount of cotton exported for the periods indicated.

TABLE 4.

Years.	Export of lint, lb.
1920	494,871
1921	502,308
1922	338,279
1923	585,143
1924	520,368
1925	473,219
1926	588,793
1927	446,274
1928	349,246
1929	282,903

The Sea Island cotton exported from St. Vincent was valued at £24,261.

The exports of Marie Galante cotton for 1929 were 63,274 lb. of lint and 97,069 lb. of seed cotton, converting seed cotton into terms of lint we find that it works out approximately at 87,541 lb. of lint which was valued at £3,074.

CACAO INDUSTRY.

The Cacao industry of St. Vincent will always be a subsidiary one, broadly speaking the conditions are not ideal for the growing of this crop. Well sheltered spots with deep soil situated at moderately low elevations will suit cacao. In addition, liberal dressings of organic matter in the shape of pen manure, leaves, grass or bush are necessary if fertility and good returns are to be obtained.

The following gives the amount of cacao exported during the past decade :—

Year.	Weight, lb.
1920	168,594
1921	139,135
1922	137,349
1923	121,374
1924	138,910
1925	154,821
1926	174,599
1927	135,490
1928	179,918
1929	156,405

According to Treasury returns the cacao exported in 1929 was valued at £2,928, or at the rate of 4·4d per pound.

STARCH.

The campaign inaugurated some two years ago to advertise St. Vincent arrowroot was continued. It will be remembered that this was carried on through the medium of the West India Committee, Mr. T. Souness being Special Investigating Officer.

In September, the Agricultural Superintendent was instructed by His Honour the Administrator, to report on the difficulties of the arrowroot situation in St. Vincent as brought forward by Mr. Souness in his reports to the St. Vincent Arrowroot Growers' Association. In this report the objects of the Association were considered, and the persons interested in the arrowroot industry classified, and the efforts made to advertise St. Vincent arrowroot since 1924 were reviewed. Grading and blending of arrowroot were dealt with, and in this connection it was

suggested that one way out of the difficulty would be for the Association to take over the whole crop of the island and blend and pulverise it before export. The fact was pointed out that the Association was not equipped for this. Questions dealing with the storage of the rhizomes, availability of water for operating machinery, yield of arrowroot, and other questions of importance were dealt with.

The Under Secretary of State, referring to the difficulties mentioned in the Report in connection with grading, etc., made the following suggestion :—"An adoption of the Canadian Wheat Pool System might overcome this difficulty" and he went on to say—"If a properly worked out scheme were drawn up it might be found to come within the conditions under which assistance from the Colonial Development Fund could be applied for".

In an address given by His Honour the Administrator, at a meeting of Arrowroot Growers on January 29th, 1930, the whole position was reviewed and recommendations were made which if carried out would eventually place the industry on a sound financial footing. His Honour went into details of the Pool System, explaining minutely each section of it, the structural organisation, the question of finance, service departments, etc. The movement was given the unanimous support of the growers and a Committee was formed to take steps to draw up a financially sound scheme to bring into operation a Pool or Association, having for its object the satisfactory organised production, grading, packing, warehousing and marketing of the entire production of the arrowroot crop of St Vincent.

The movement, although it did not take concrete form until early in 1930, is of such importance to warrant early and wide publication.

During the year 3,573,759 lb. of arrowroot were exported from the Colony. Of this the United Kingdom took 1,529,599 lb. and the United States of America 1,078,093 lb. This latter figure was 330,079 lb. less than that of 1928. The figures should not be taken as indicating that less interest is being shown in St. Vincent arrowroot in the United States, as enquiries have recently come to hand from which one may infer that this may increase in the near future. Barbados came next with regard to the quantity taken which was 364,441 lb., this was followed by Canada with 206,396 lb., France 121,401 lb., Germany 76,567 lb. and Trinidad 72,392 lb. The remainder was absorbed by British Guiana, Curaçao and five small West India Islands.

The following table gives the exports of arrowroot and cassava for the past ten years :—

TABLE.

Year.	Arrowroot lb.	Value £.	Cassava lb.	Value £.
1920	2,794,532	52,771	343,309	3,844
1921	2,093,358	21,216	156,888	1,666
1922	2,692,130	26,141	160,333	1,482
1923	2,177,182	31,829	366,085	3,700
1924	2,952,537	51,361	634,631	6,838
1925	3,190,412	53,174	470,284	4,160
1926	3,291,553	45,807	443,075	4,077
1927	3,195,487	53,309	543,681	4,940
1928	3,870,420	64,508	392,610	3,272
1929	3,573,759	59,563	551,512	4,595

Arrowroot was valued at 4d. per pound and cassava at 2d.

In addition to the above 7,436 lb. of farine, valued at £55 were exported.

SYRUP AND SUGAR INDUSTRY.

During the year 1,075 tons of sugar and 287,941 gallons of syrup were exported.

The exports for sugar and syrup for the past ten years are given below:—

TABLE.

Year.	Sugar lb.	Value £.	Syrup Gallons.	Value £.	Total Value £.
1920	...	...	185,999	27,828	27,828
1921	322,560	3,514	117,157	9,878	13,392
1922	150,080	1,264	134,784	9,862	11,126
1923	145,944	1,863	275,932	18,711	20,574
1924	22,400	280	261,127	15,578	16,038
1925	...	...	268,118	19,672	19,672
1926	...	...	337,099	16,523	16,523
1927	839,000	6,947	171,063	10,496	17,443
1928	2,081,408	14,193	167,044	9,478	23,671
1929	2,408,000	14,095	287,941	12,586	26,671

In the following table, sugar has been equated into terms of syrup, and syrup into terms of sugar, it being estimated that 300 gallons of syrup are equal to one ton of sugar.

TABLE.

Year.	Syrup, Gallons.		Sugar, Tons.
1920	185,999	Equal to	619
1921	160,357	,,	534
1922	154,884	,,	516
1923	295,432	,,	984
1924	264,127	,,	880
1925	368,118	,,	1,220
1926	337,099	,,	1,123
1927	283,563	,,	945
1928	445,744	,,	1,486
1929	610,441	,,	2,035

The combined value of sugar and syrup was £26,671, that for sugar alone £14,095; or at the rate of a little more than £13 per ton, that for syrup was £12,586 or at the rate of 10·5d per gallon.

There was a considerable increase on the exports of sugar cane products during the year. This is the outcome of recently modernising a set of sugar machinery in the island.

The members of the West India Sugar Commission, Lord Olivier, Mr. D. M. Semple and Mr. S. Caine with Mr. G. A. Jones paid a brief visit to St. Vincent on November 13th. Lord Olivier accompanied by His Honour the Administrator visited some of the land settlements, and other members of the party accompanied by the Agricultural Superintendent, visited the only modern sugar factory in the island.

Coco-Nuts.

The export of copra continues to increase. Some ten years ago exports of coco-nut products were valued at some £200, at the present time it is worth £12,000. The growing of this crop is being steadily increased.

Coco-nuts in St. Vincent are on the whole, in a healthy condition.

The following give the exports of copra and coco-nuts for the past decade:—

TABLE.

Year.	Quantity.		Value.	
1920	Coco-nuts	16,448	144	£574
	Copra	22,644	430	
1921	Coco-nuts	13,399	82	£1,435
	Copra	89,005	1,353	
1922	Coco-nuts	700	6	£2,349
	Copra	223,593	2,343	
1923	Copra	356,626		£2,959
1924	Coco-nuts	4,841	22	£5,452
	Copra	645,973	5,430	
1925	Coco-nuts	9,435	20	£5,532
	Copra	661,309	5,512	
1926	Coco-nuts	20,463	102	£9,928
	Copra	762,563	9,826	
1927	Coco-nuts	11,383	52	£10,135
	Copra	1,198,441	10,083	
1928	Coco-nuts	26,703	113	£12,656
	Copra	1,505,093	12,543	
1929	Coco-nuts	118,500	502	£11,898
	Copra	1,879,558	11,396	

The export of copra in 1929 represents a little more than 839 tons, therefore it was valued at between £13 and £14 per ton.

PROGRESS IN MINOR INDUSTRIES.

MAIZE (*Indian Corn*).

There was a decrease of 153 bushels in the quantity of maize exported when compared with that of 1928, but this is offset by increased production of other minor crops.

Year.	Export, bushels.
1920	2,428
1921	1,683
1922	581
1923	4,696
1924	2,766
1925	2,754
1926	1,751
1927	1,901
1928	961
1929	808

GROUND-NUTS.

The quantity of ground-nuts exported was slightly in excess of that of the previous year, being 358,890 lb. This works out at 6,902 bushels i.e., 458 in

excess of that exported during 1928. They were valued at £4,486, or at 3d. per pound. The exports for the past decade are given below :—

Year.	Export, bushels.
1920	12,017
1921	5,584
1922	8,336
1923	8,803
1924	6,195
1925	5,251
1926	3,673
1927	5,067
1928	6,444
1929	6,902

Peas and Beans.

There was twice the quantity of peas and beans exported during the year than in the previous one. This was due to the long Close Season for cotton. The exports amounted to 176,701 lb. or 3,398 bushels. These were valued at £1,673 or approximately at the rate of 2·2d. per pound. The following gives the exports for the past ten years :—

Year.	Export, bushels.	Value, £
1920	1,581	952
1921	2,637	1,472
1922	2,731	1,640
1923	2,482	1,595
1924	1,744	884
1925	1,548	866
1926	965	476
1927	745	352
1928	1,855	876
1929	3,398	1,673

Miscellaneous.

The exports of vegetables were valued at £3,040, spices £1,309, fruit £560, poultry £445, and wood, lime juice and whale oil at £189.

Rum Industry.

2,776 proof gallons of rum were exported. This was valued at £179. A total of 34,595 gallons were distilled.

Manila Hemp (*Musa textilis, Nees.*)

It was recently decided by His Honour Major H. W. Peebles, D.S.O., O.B.E., Administrator, that a machine for cleaning this fibre should be imported from the Philippine Islands. The cost of this is to be included in the Estimates of the Agricultural Department for 1931. The machine is called the Hagotan Hemp Machine and is made by the Universal Hemp Machine Coy., Inc., Manila. By the time this arrives there will be sufficient plants in the island to provide material for clearing up the question as to whether the hemp can be cleaned sufficiently cheap to make the growing of Manila Hemp in St. Vincent a paying proposition.

Permanent Exhibition Committee.

During the year 1929, St. Vincent participated in the British Industries Fair, the Ideal Home Exhibition, and the International Grocers Exhibition. The carrying out of the work in England connected with these was in the hands of the West India Committee. Duplicate sets of exhibits were put together and sent to England for exhibition purposes. Sir Algernon Aspinall, Secretary, West India Committee, in his report on these said—"St. Vincent took a prominent part in the British West Indies Section at the British Industries Fair in February last and at the Ideal Home Exhibition in March. Many thousands of the Empire Marketing Board booklets of arrowroot recipes were distributed, also 5,000 sample tins of arrowroot. At the Ideal Home Exhibition there was an exceptional demand for samples which was in all probability increased by the broadcasting of the Empire Marketing Board recipes from Daventry. We could probably in fact, have sold another 5,000 tins. During the course of the Exhibition 10,000 of the leaflets "Islands of Sunshine" were distributed".

The International Grocers Exhibition was held in London in September. This was reported on as follows:—"In the Empire Marketing Board Section of the Exhibition a special display of St. Vincent arrowroot was made. Not only arrowroot put in new approved pulverised and sieved form was shown by wholesale houses, but also foodstuffs manufactured from it, i.e., meringues and arrowroot biscuits".

"Mrs. E. A. Hornibook supervised the manufacture of maize cakes and meringues which were distributed as tasting samples, together with the Empire Marketing Board recipes leaflets".

"Arrangements were made with three firms of biscuit manufacturers to display their biscuits under guarantee that they contained St. Vincent arrowroot.

"Free samples were distributed on behalf of these firms.

"Five wholesalers exhibited pulverised and sieved St. Vincent arrowroot.

"About nine hundred samples of St. Vincent arrowroot were sold at one penny each.

"Numerous enquiries were received from retail grocers for Empire Marketing posters and recipe leaflets".

It is not only arrowroot that is shown and advertised at these Exhibitions, but also the principal products of the island.

Since Wembley, 1924, St. Vincent has consistently taken part in exhibitions and fairs and these have been associated with the campaign to popularise St. Vincent arrowroot, carried out in England by the West India Committee.

AGRICULTURAL INSTRUCTION, EDUCATION AND CO-OPERATION.

The report on Agricultural Credit Societies appears in another part of this publication. Agricultural Officers paid frequent visits to estates and peasant holdings during the year. They travelled 201 days and were away from headquarters for 65 nights. The Agricultural Superintendent attended and addressed twenty-four meetings. Each dealt with matters pertaining to agriculture.

Science Teaching.

This is done by the Science Master attached to the Grammar School.

Details of Staff and Administration.

The sum of £1,642 was voted for the upkeep of the Agricultural Depart-

ment. The following gives details of expenditure :—

	£	s.	d.
Salary, horse and travelling allowance, Agricultural Superintendent ...	448	17	10
Salaries, Foreman, Botanic and Experiment Station, Cotton Inspector, Officer in Training and Clerical Assistant, and horse and travelling allowances, Agricultural Instructor and Cotton Inspector ...	484	0	0
Upkeep Botanic and Experiment Stations, (labour, tools, manures, etc.) ...	589	15	0
Destruction of food plants of the Cotton Stainer ...	4	5	7
Salary, horse and travelling allowance, Government Vaccinating Officer ...	30	0	0
Other charges, Government Veterinary Department...	21	19	4
Special Cotton Investigations ...	3	19	11
Total ...	£1,582	17	8

Leave.

The Agricultural Superintendent was granted four months' leave of absence from November 19th. Mr. T. Osment, late District Officer, Southern Grenadines acted for him.

Receipts.

The receipts for sale of plants and produce at the Botanic and Experiment Stations, amounted to £89. 2. 7.

Correspondence and Distribution of Information on Agricultural Matters.

The number of minute papers dealt with amounted to 242, and the number of letters despatched was 684. In addition 218 reports, etc., were sent out.

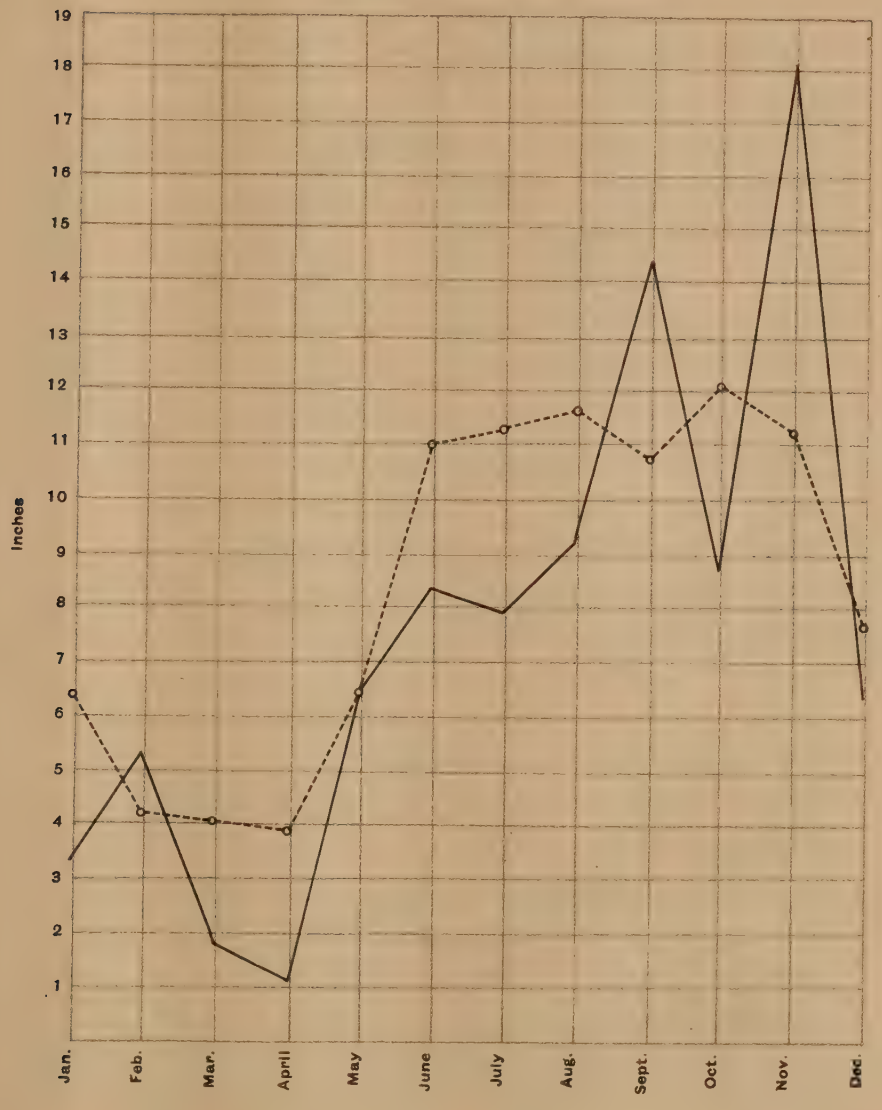
METEOROLOGICAL OBSERVATIONS.

The average rainfall for the past 36 years at the Botanic Gardens was 96·94 inches. The rainfall for 1929 was 91·45 inches, it was therefore slightly below the average.

The following gives the rainfall recorded at the Botanic and Experiment Stations during the period under report :—

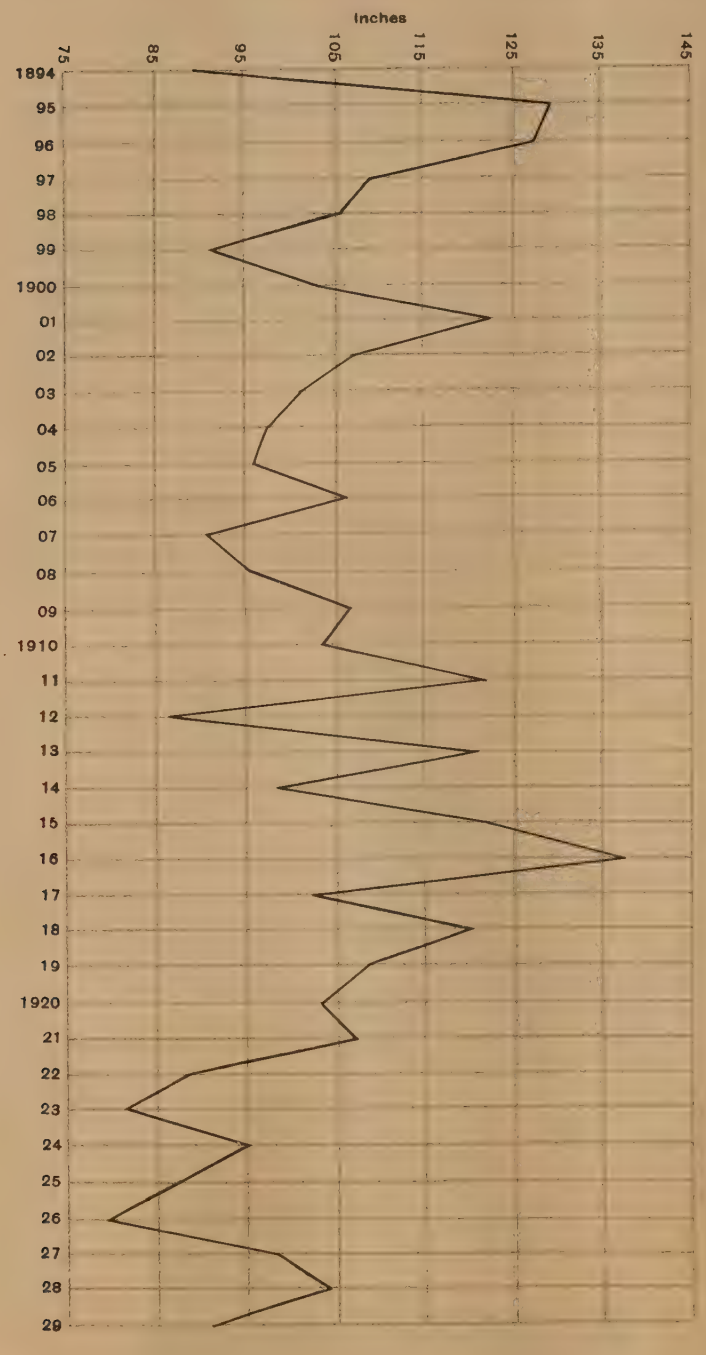
Month.	Botanic Gardens.	Experiment Station.
January	3·37	2·81
February	5·36	5·62
March	1·91	1·81
April	1·13	·54
May	6·38	5·63
June	8·32	7·29
July	8·02	7·44
August	9·38	8·20
September	14·39	14·15
October	8·76	7·46
November	18·01	16·87
December	6·42	4·14
Total	91·45	81·96

MONTHLY RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894–1929.



Black line represents monthly rainfall, 1929.
Dotted line represents mean monthly rainfall, 1894–1929.

ANNUAL RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894–1929.



At the Botanic Gardens rain was recorded on 296 days; the heaviest fall was November 18th when 2·77 inches fell. Rain was recorded at the Experiment Station on 259 days, the heaviest fall was on September 24th when 2·24 inches were measured.

The following table gives the mean temperature, average degree of humidity, and the mean barometric pressure in inches for each month during the year:—

Meteorological Observations, Experiment Station, for 1929.

TABLE.

Month.	Mean temperature F°.	Average degree of humidity, Saturation 100.	Mean barometric pressure in inches.
January ...	77·4	67·5	29·965
February ...	77·4	69·4	29·974
March ...	78·5	63·4	29·971
April ...	80·1	67·6	29·968
May ...	80·2	74·9	29·963
June ...	80·5	77·6	29·972
July ...	80·9	74·4	29·976
August ...	81·3	75·3	29·939
Sepember ...	81·5	75·9	29·940
October ...	81·4	73·6	29·888
November ...	80·3	77·0	29·881
December ...	78·5	67·4	29·942

Atmospheric Pressure.

The reading of the barometer, corrected for instrumental error, elevation, temperature and latitude, ranged from 30·074 on February 22nd, to 29·741 on October 30th.

Official Visitors.

On January 8th, Mr. Hayes of the Gambia Agricultural Department, visited the Botanic and Experiment Stations.

Rear Admiral Hotham and Major General Sir L. B. Friend on February 1st, visited the Botanical Gardens. Rear Admiral Hotham is a member of the Executive of the West India Committee. He took advantage of this visit to confer with the Agricultural Superintendent and members of the Committee of the St. Vincent Arrowroot Growers' Association on matters dealing with the arrowroot publicity propaganda which is now being carried on in England by the West India Committee.

On March 3rd Professor Barbou of Harvard University, and on March 10th Mr. R. O. Williams, Superintendent and Assistant Botanist, Trinidad, visited the Botanic Gardens.

Mr. Evans, Principal, Imperial College of Tropical Agriculture, accompanied by Professor Ballou, Professor Britton-Jones and a party of students paid the Gardens a visit on March 27th. All members of the party, except Professor Ballou, were en route to St. Lucia. The Commissioner of Agriculture (Professor Ballou) remained in the island until April 3rd. He visited several estates and addressed a meeting of The St. Vincent Chamber of Agriculture and Commerce.

On October 30th Professor Dash, Director, Agricultural Department, British Guiana, visited the Experiment Station, Government Cotton Ginnery and the Botanical Gardens.

VETERINARY REPORT.

Microscopic examination of ears of animals for anthrax was performed at the Colonial Hospital.

The total sum expended on Veterinary work was made up as follows :—

	£	s.	d.
Salary and Travelling Allowance, Government Vaccinating Officer	30	0	0
Burial of Carcasses	21	19	4
Total	£51	19	4

Anthrax.

No cases of anthrax have been recorded in St. Vincent since 1914.

Vaccination.

Fifty-seven cattle were treated for export.

The following gives the exports of animals for which no certificates were given :—

Table A.

Class of Animal.	Number.	Value £
Sheep ...	644	362
Goats ...	1,630	566
Pigs ...	1,670	2,911
Total ...	3,944	3,839

Table B.

Showing kind, number and value of stock for which veterinary certificates were given, also the Colonies to which the animals were exported.

Class of Animals.	Barbados.		Trinidad.		Grenada.		St. Lucia.		Total.	
	No.	Value £	No.	Value £	No.	Value £	No.	Value £	No.	Value £
Cattle ...	35	353	44	267	1	10	10	100	90	730
Horses ...	6	102	...	...	...	...	...	...	6	102
Asses ...	38	96	5	9	...	...	...	...	43	105
Mules ...	4	100	...	...	...	...	...	...	4	100
Total ...	83	651	49	276	1	10	10	100	143	1,037

Table C.

Nineteen animals valued at £133 were imported.

Class of Animal.	Number.	Value £
Cattle ...	3	18
Horses ...	5	30
Goat ...	1	2
Pigs ...	10	13
Total ...	19	133

Certificates were granted for 2,705 hides valued at £417.

Table D.

Showing deaths of animals in districts from natural causes.

District.	Cattle.	Horses.	Asses.	Goats.	Pigs.	Total.
Kingstown ...	12	...	1	2	6	21
Calliaqua ...	6	...	...	...	...	6
Mesopotamia ...	7	2	2	...	...	11
Total ...	25	2	3	2	6	38

Table E.

Showing deaths of animals in each month of the year ended December 31st, 1929.

Months.	Cattle.	Horses.	Asses.	Goats.	Pigs.	Total.
January ...	1	...	...	...	3	4
February ...	1	...	...	...	...	1
March ...	6	...	...	...	...	6
April ...	5	...	...	...	1	6
May ...	1	...	1	2	...	4
June ...	2	...	...	...	1	3
July ...	2	...	...	...	...	2
August ...	2	...	1	...	...	3
September ...	2	...	1	...	1	4
October ...	...	...	...	...	...	...
November ...	3	2	...	...	...	5
December ...	...	...	...	...	...	...
Total ...	25	2	3	2	6	38

Report on the Government Fruit and Vegetable Bureau.

This Bureau was not attached to the Agricultural Department during 1929. The work of it, however, is so intimately associated with agriculture that it was decided to include an account of its working in this publication.

The following was written by the Manager, Government Fruit and Vegetable Bureau.

The Bureau started functioning on the 15th July, 1929, when an office was opened in the yard adjoining the stables of the old Agricultural School.

The following week the "Peasants Advisor" arrived, and proceeded to convert the stables into a Packing-house.

On August 1st, the first shipment of fruit was made which consisted of Green Limes, Mangoes, Paw-paws and Pineapples. Since that date regular shipments have been made.

Considerable difficulty was experienced in obtaining reliable persons to sort, grade, pack, and at the same time carefully handle the fruit. This especially applies to Avocado Pears. Thanks to the Girl Guides who quickly picked up the general idea, and carefully followed instructions this was largely overcome.

The list of produce shipped during the year includes:—

Avocado Pears	Lime Juice
Blackeye Peas	Mangoes
Essential Oil	Oranges
Green Limes	Paw-Paws
Grapefruit	Pineapples
Golden Apples	Pumpkins
Guava Jelly	Sweet Potatoes
	Tomatoes.

Avocado Pears, of which 361 crates were shipped to Canada, Bermuda, England, and Demerara proved that with this crop possibilities exist. The Brokers report on Pears shipped to Covent Garden London reads, "I am sure we can do well with regular consignments of such magnificent Avocado Pears as you have sent us. I have seen as fine abroad, but have never seen such wonderful fruit in this country." Some of these pears sold as high as two shillings and six pence each. Shipments to Canada were not so satisfactory as the crates used held too many pears, and many of the pears were of the Red or Purple type which is not only a bad carrier but unattractive in appearance. Shipments will be made to Canada next year in smaller crates. Bermuda provided a useful market. Pears in Demerara netted 1½d each.

Mangoes were exported chiefly to Bermuda. It is hoped to find a market for grafted Mangoes in England before the 1930 crop comes in.

Green Oranges are not marketable in Canada, and steps are being taken to colour the fruit with Carbon monoxide. These remarks also apply to Grapefruit.

Green Limes found a ready market in the U. S. A. and Bermuda. Lime Juice was sold in Demerara pending a direct market in Canada.

Limes have heretofore been of little or no monetary value to growers. Now planters and peasants are bringing in their Limes, and receiving good prices.

Tomatoes grow readily in the Island, and small trial shipments were made. Subsequent results have proved that this crop will prove a very valuable one to the Colony.

An ample supply of Orange, Onion, and Tomato Crates is on hand, and an attractive label (which has been favourably commented on in Canada, and America) is attached to each crate prior to shipment.

Acting on advice from Canada the name of the Bureau has been changed from Peasant's Bureau to Government Fruit and Vegetable Bureau; the name Peasant being misleading to the trade, who imagine that fruit and vegetables exported would not be properly graded and packed if done by a Peasant's Bureau.

Nurseries were established throughout the Island where Tomato plants and Onion slips were raised and distributed free to the Peasants.

Every endeavour is being made to establish a reliable and constant market for Guava Jelly.

Detailed Statement of the Fruit and Vegetable Bureau from 17th August to 31st December, 1929.

1929.						1929.					
Dec. 31st.	To amount expended in the purchase of Fruit, etc.			£111	3 2	Dec. 31st.	By sale of Fruit, etc. abroad			£121	19 10½
	,, Labour ...	£49	16 7				,, ,, ,, ,, ,, locally			8	18 8½
	,, Cost of Crates, etc. ...	121	12 6				,, Commission on sale locally				1 3
	,, Freight, etc. ...	132	2 9½				,, Value of Fruit on hand			3	19 10
	,, Contingencies ...	2	4 6				,, Cash in Bank			111	6 6½
	,, Bonus distributed ...	7	15 10	313	12 2½		,, ,, ,, Hand			1	14 3
							,, ,, ,, Reserve			5	5 10
	,, amount expended on Sugar, Guavas, Coals, Labour, Bottles, and Sundries			40	10 0		Net Proceeds Fruit sold but not accounted for London ...	£98	12 4		
	,, Bills payable			263	6 2		New York	7	13 4	106	5 8
	,, Balance Credit			109	5 11		Value of fruit shipped and not yet sold ...			119	18 0
							Sale of Jelly locally				6 10
							,, ,, ,, abroad			1	7 10
							Value of Jelly shipped and not yet accounted for ...			13	13 2
							,, ,, stock on hand-crates, lables, bottles, jelly, etc.			342	19 8
				£837	17 5½					£837	17 5½

Financial Statement of the Fruit and Vegetable Bureau at 31st December, 1929.

Liabilities.				*Assets.*			
1929.							
Dec. 31st. To Cash advanced by Treasury ...	£349	18	5	By Bills receivable ...	£239	11	10
Loan from Government Cotton Ginnery ...	100	0	0	Stock on hand ...	342	19	8
Bills Payable ...	263	6	2	Fruit on hand ...	3	19	10
				Cash on hand ...	123	6	8
				Excess of liabilities ...	3	6	7
	£713	4	7		£713	4	7

Report on the Agricultural Credit Societies for the Year 1929.

In the 1928 Report on these Societies the question of winding up the affairs of some was discussed. On May 11th the registration of fifteen Societies was cancelled by the Governor in Council under Section 22 of the Agricultural Credit Societies Ordinance. Bequia Society was dissolved by the request of members in November. The Societies now registered are Clare Valley-Questelles, Troumaca, Georgetown and Redemption. Therefore at the beginning of the year there were twenty Societies registered, and at the end, four.

Clare Valley-Questelles. The loan of £187 contracted by this Society in 1928 was repaid in 1929. This was obtained from Barclays Bank. In August 1929, two loans were contracted, both were from private individuals. One was for the sum of £50 and the other for £22. 18. 4 a total of £72. 18. 4 which was loaned at the rate of 7 per cent interest. This Society has a membership of 54.

Redemption. This Society has repaid all loans.

Troumaca. The loans of £90 from a Temperance Society and £100 from a Provident Society obtained in 1928 were not fully repaid. The sum of £20 to each was paid. This Society has a membership of 56.

Georgetown. This Society repaid in April, 1929 the loan of £150 obtained from a private individual in 1927 and renewed in 1928. All previous loans have been repaid. The membership of this Society is 87.

Statement of Transactions.

The following gives the loans obtained in 1929, with total loans obtained by all Societies since their inception :—

Loans obtained in 1929	£	72	18 4
Total loans obtained by all Societies since their inception		36,228	8 4

Summary.

The loans repaid during the year amounted to ...		377	0 0
The loans obtained since these Societies were registered to December, 1929		36,228	8 4
Interest on loans during 1929		23	1 9
Loans outstanding other than those contracted in 1929		150	0 0

Report on the working of the Government Cotton Ginnery for the period 1st October, 1928 to 30th September, 1929.

The following section was prepared by the Manager of the Government Cotton Ginnery :—

Ginning and Baling.

Seed cotton received for ginning amounted to 607,915 lb., made up of 487,923 lb. white Sea Island and 119,992 lb. stained. The total quantity received during the previous season was 740,489 lb. made up of 614,984 lb. white and 125,505lb. stained. There was therefore a decrease of 132,574 lb. during the year under review. The lint obtained from the white seed cotton amounted to 128,070 lb., and that from the stained to 30,436 lb., making a total of 158,506 lb.,—a decrease of 36,581 lb., on the previous year's total of 195,087 lb.

Oil Expressing and Refining.

The total quantity of seed from which oil was expressed was 758,466 lb., which included 231,049 lb. received from the Kingstown Cotton Factory and 184,438 lb. of Marie Galante seed obtained from cotton ginned at Union Island in the St. Vincent Southern Grenadines. The quantity of seed from which oil was expressed during the previous year was 748,814 lb., so that there was an increase of 9,652 lb., for which the seed received from Union Island was responsible.

All the Marie Galante seed obtained from cotton ginned at Union Island for the previous four seasons was exported to Barbados, but during the 1928-29 season restrictions were placed upon the importation of cotton seed into that Colony necessitating the treatment of the seed in a Simon's Patent Heater, and as the machine had not yet been installed, the seed could not be imported into Barbados.

As in previous years, the crude cotton seed oil was refined and sold locally by the ginnery, although continued low prices for Soya Bean Oil, which is used as a substitute for cotton seed oil, caused sales to be rather slower than they were in previous years. The quantity of refined oil obtained was 6,484 gallons, of which there were 2,161 gallons on hand at the end of the year under report.

7,461 bars of soap were manufactured from the residue of the oil refining kettle, and these were, as usual, sold locally. The approximate weight was 14,300 lb.

Purchase of Cotton on the Co-operative System.

Advances of 4d. per lb. on white and 1d. per lb. on stained Sea Island cotton were paid for crop 1928-29. The purchases amounted to 130,794 lb. of white and 27,807 lb. of stained, making a total of 158,601 lb. The figures for crop 1927-28 were 218,052 lb. of white and 31,396 lb. of stained, making a total of 249,448 lb., so that the 1928-29 season showed a decrease of 90,847 lb., nearly 37 per cent.

The lint obtained was 34,691 lb. white, and 6,958 lb. stained, giving a total of 41,649 lb., which was 24,219 lb. less than the total for 1927-28.

At 30th September, 1929, there were 24 bales of white lint remaining unsold in England, but these have since been disposed of.

A Bonus of $66\frac{2}{3}\%$ was paid on the cotton purchased during crop 1927-28, therefore growers received, with this and previous payments 1/8 per pound of lint.

Purchase of Corn on the Co-operative System.

113,118 lb. of shelled corn and 36,599 lb. of corn on the cob were purchased on the Co-operative System, as compared with 12,516 lb. of shelled corn during

crop 1927-28. The purchases for 1928-29 were just about equal to those for a normal year—those for 1927-28 were much below normal as there was a great scarcity in that year. The advances made were at the rate of $1.25 per 100 lb. for shelled and 88 cents per 100 lb. for cob corn.

On kiln-drying 121,287 lb. were obtained. About half this quantity remained unsold at the end of the year under review as suitable market was not obtained for disposal of surplus outside of the Colony.

Other Transactions.

In addition to the corn purchased on the co-operative system, 2,477 lb. were kiln-dried and 1,213 were shelled. The quantity ground into meal or stock-feed was 47,620 lb.

6,454 lb. of cotton seed were selected and disinfected for planting, and 2,235 lb. were selected without being disinfected. 6,329 lb. were sold to peasants and estate proprietors for planting.

The seed obtained from stained cotton ginned at this ginnery (with the exception of 5,755 lb.) as well as that obtained from the Kingstown Cotton Factory was disintegrated for use as manure.

General.

The two Fuel Oil Heater Tanks imported towards the close of the previous season enabled the ginnery to substitute diesel oil for a large proportion of the lighter fuel oil which was previously used to supply the motive power to the "Blackstone" oil engines. It was found advisable to add a small proportion of the lighter oil to the diesel.

The seed obtained from cotton ginned at the Kingstown Cotton Factory was treated in the Simon's Patent Heater for destruction of pink bollworm, in addition to that from cotton ginned by the ginnery, and necessary repairs to buildings, etc., were effected.

The following is a summary of transactions for the last two years :—

	1927-28.		1928-29.	
Seed Cotton received and ginned ...	740,489	lb.	607,915	lb.
Cotton Seed expressed	748,814	,,	758,466	,,
,, ,, disintegrated	147,888	,,	132,967	,,
Seed Cotton purchased	249,448	,,	158,601	,,
Corn purchased	12,516	,,	149,717	,,
Corn kiln-dried	11,388	,,	123,764	,,
Corn shelled	1,473	,,	30,493	,,
Cotton Seed selected and disinfected for planting	13,971	,,	6,454	,,
Cotton Seed selected only	2,689	,,	2,235	,,
Grain, etc., fumigated and stored ...	9,018	,,	31,626	,,
Corn ground into meal or stock-feed ...	14,147	,,	47,620	,,
Cotton Seed Oil refined	7,175	galls	6,484	gals.
Soap manufactured	6,784	bars	7,461	bars
Cotton Seed Meal delivered ...	320	tons	350	tons.